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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/621,943	07/24/2000	Hisashi Ohtani	07977/227002/US3559D1	5256

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EXAMINER

BROPHY, JAMIE LYNN

ART UNIT PAPER NUMBER

2822

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/621,943

Applicant(s)

OHTANI, HISASHI

Examiner

J. L. Brophy

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-13 is/are allowed.
- 6) ☒ Claim(s) 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 17 April 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/026,888.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

This office action is in response to the RCE filed 5/22/03.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/17/03 has been entered.

Terminal Disclaimer

The terminal disclaimer filed on 4/17/03 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,093,587 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 4/17/03 have been disapproved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "311" and "315" have both been used to designate the silicon oxide film. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al (5,712,191) in view of King et al ("Polycrystalline Silicon-Germanium Thin-Film Transistors", cited by applicant) and Makita et al.

Nakajima et al teach a method that comprises forming an amorphous semiconductor film 303 on an insulating surface 302;

Applying a crystallization promoting material 304, 101 comprising a metal to a selected portion of the amorphous semiconductor film; and

Crystallizing the amorphous semiconductor film 303 provided with said crystallization promoting material 101 by heating,

Wherein the crystallization promoting material 304 is applied by applying a solution containing said metal therein (col. 8, lines 23-25) and

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Wherein the metal is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au (col. 3, lines 36-38).

See Figs. 3A to 3E and accompanying text,

However, Nakajima et al do not specifically teach that the method is used for manufacturing an EL display device. In addition, Nakajima et al do not specifically teach that the amorphous semiconductor film comprises $\text{Si}_x\text{Ge}_{1-x}$.

King et al teach using crystallized amorphous $\text{Si}_x\text{Ge}_{1-x}$ in manufacturing TFTs.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method disclosed by Nakajima et al by using amorphous $\text{Si}_x\text{Ge}_{1-x}$ in place of amorphous silicon in order to lower the thermal budget used during fabrication of the TFT (see King et al, first page, col. 1).

Makita et al teach a method for crystallizing an amorphous silicon layer using a catalyst heat treatment in manufacturing a TFT that can be used in an EL display device (col. 19, lines 54-60).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method taught by Nakajima et al by using the TFT taught by Nakajima et al in an EL display device because the TFT taught by Nakajima et al has a high withstand voltage and is capable of operating a large current (see Nakajima et al, col. 3, lines 1-11).

Allowable Subject Matter

Claims 1-13 are allowed.

The following is an examiner's statement of reasons for allowance: none of the references of record teach all of the process limitations as claimed. Specifically, none of the references teach a method that comprises removing a portion of the amorphous semiconductor film to form a metal element addition region and selectively introducing the metal element in contact with the metal element addition region, in combination with the other claim limitations.

Response to Arguments

Applicant's arguments filed 4/17/03 have been fully considered but they are not persuasive.

Applicant mainly argues that the King reference teaches that germanium has already been added to the SiGe film and that it would not be obvious to add nickel to the SiGe film after the germanium has already been added. However, as pointed out in the above rejection, Nakajima et al teach a method that includes using nickel to promote crystallization of a semiconductor film. The King reference is used to teach that the semiconductor film may be SiGe. Therefore, applicant's argument is not found persuasive since the combination of references teaches that it would have been obvious to add nickel to a SiGe film in order to promote crystallization.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. Brophy whose telephone number is (703) 308-6182. The examiner can normally be reached on M-F (8:00-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

J.L.B.

jlb

June 2, 2003


AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800